Author Index to Volume 7

References with (L) are to Letters to the Editor; and with (S) to Symposium on "The Kinetics of Homogeneous Gas Reactions."

Almy, G. M. (see Fuller, H. Q.)—973(L)
Ashford, T. A. (see Rosenbaum, E. J.)—554(L)
Avrami, Melvin. Kinetics of phase change. I.—1103

Bacon, R. C. (see McBain, J. W.)—818
Badger, Richard M. (see Zumwalt, Lloyd R.)—87(L), 235, 629
Bailey, C. R. and S. C. Carson. Infra-red absorption of gaseous cyanogen C_2N_2—859
Baker, William O. and Charles P. Smyth. Mechanism of orientation in *i*-amyl bromide glasses—574
Band, William. Dissociation treatment of condensing systems—324: Part II.—927
—— On the nature of the liquid state—1114(L)
Barker, E. F. Vibrational assignments in ethane—277(L)
—— (see Gage, D. M.)—455
Barr, E. S. and C. J. Craven. Further study of the absorption of aqueous solutions at 4.72μ—8
Bateman, J. B. and Leslie A. Chambers. Surface elasticity of protein films. I. Egg albumin—244
Bath, Jean (see Ellis, Joseph W.)—862
Bauer, S. H. Inversion of the partition function to determine the density of energy states—1097
Baughan, E. C. Electrostatic effects on ionization constants—951
Bayliss, N. S. and A. L. G. Rees. Interpretation of the visible absorption of bromine—854(L)
Beeck, Otto and Ahlborn Wheeler. Activated adsorption of nitrogen on iron at 23° and 100°C, and ammonia synthesis—631(L)
Beeson, Carrol M. and Don M. Yost. Equilibrium dissociation and thermodynamic constants of nitrosyl chloride. Comparison with spectroscopic data—44
Berger, J. A. (see Sidhu, S. S.)—322
Bethe, H. A. and J. G. Kirkwood. Critical behavior of solid solutions in the order-disorder transformation—578
Blewett, J. P., H. A. Liebhafsky and E. F. Hennelly. Vapor pressure and rate of evaporation of barium oxide—478
Bonhoeffer, K. F. Discussion—645
——, **K. H. Geib and O. Reitz.** On the rate of ionization in aqueous solution of the carbon-hydrogen bond in aliphatic compounds—664(S)
Bonner, L. G. (see Kirby Smith, J. S.)—880
Born, Max. Thermodynamics of crystals and melting—591
Boyd, G. E. (see Harkins, William D.)—203(L)
Boyd, R. N. (see Hildebrand, J. H.)—1094
—— **and Helmut R. R. Wakeham.** Effect of temperature on the structure of mercury—958
Bramley, Arthur (see Brewer, A. Keith)—972(L)
—— **and A. Keith Brewer.** Thermal method for the separation of isotopes—553(L)
Breit, Gregory. Discussion—652
Brescia, Frank. Prediction of rate constants from equilibrium data for reactions in D_2O-H_2O mixtures—310
Brewer, A. Keith (see Bramley, Arthur)—553(L)
—— **and Arthur Bramley.** Effect of baffles on the thermal separation of gases—972(L)
Brody, J. Heterophase fluctuations and pretransition phenomena—972(L)
Bruce, H. D. (see McBain, J. W.)—818
Buerger, Newton W. The polymorphism of Cu_2S, and the relations between the solid phases in the system Cu_2S-CuS—1067(L)
Burcik, E. J. and Don M. Yost. Heat capacity of cyanogen gas—1114(L)
Burk, Robert E. (see Laskowski, Leona)—465
Burton, Milton. Discussion—679, 680, 682, 780, 781
—— Remarks on the calculation of bond strengths—1072
—— (see Davis, Thomas W.)—1075
—— (see Taylor, H. Austin)—414, 572, 675(S)
——, **H. Austin Taylor and Thomas W. Davis.** Chain length and chain ending processes in acetaldehyde decomposition—1080
Buswell, A. M., R. L. Maycock and W. H. Rodebush. Infra-red absorption of hydrogen fluorides—856(L)
Byers, Walter H. Electric moment of cellosolves—175

Cameron, Donald M., William C. Sears and Harald H. Nielsen. Infra-red absorption by hydrogen selenide, deuterium selenide and deutero-hydrogen selenide—994
Campbell, Hallock C. (see Rice, O. K.)—700(S)
Carr, Emma P. and Hildegard Stücklen. Electronic transition of the Rydberg series type in the absorption spectra of hydrocarbons—631(L)
Carson, S. C. (see Bailey, C. R.)—859
Cernuschi, F. and H. Eyring. Elementary theory of condensation—547
Chambers, Leslie A. (see Bateman, J. B.)—244
Christiansen, J. A. Discussion—718, 724, 765
—— On intramolecular diffusion, quantum-theory, and the calculation of unimolecular velocity-constants—653(S); Discussion—656
Clark, Chas. R. (see Stearn, Allen E.)—970
Cleaves, A. P. and E. K. Plyler. Infra-red absorption spectrum of methylamine vapor—563
Cleveland, Forrest F. and M. J. Murray. Depolarization measurements on raman lines by an easy, accurate method—396
Coffin, C. C. (see Dacey, J. R.)—315
Cohen, Karl and Harold C. Urey. Erratum: The vapor-pressures of ortho- and parahydrogen and ortho- and paradeuterium—1068(L)
—— **and Harold C. Urey.** Van der Waals' forces and the vapor pressures of ortho- and parahydrogen and ortho- and paradeuterium—157
—— **and H. C. Urey.** Vapor pressures of *o*- and *p*-H_2 and D_2—438(L)

Author Index to Volume 7

References with (L) are to Letters to the Editor; and with (S) to Symposium on "The Kinetics of Homogeneous Gas Reactions."

Almy, G. M. (see Fuller, H. Q.)—973(L)
Ashford, T. A. (see Rosenbaum, E. J.)—554(L)
Avrami, Melvin. Kinetics of phase change. I.—1103

Bacon, R. C. (see McBain, J. W.)—818
Badger, Richard M. (see Zumwalt, Lloyd R.)—87(L), 235, 629
Bailey, C. R. and S. C. Carson. Infra-red absorption of gaseous cyanogen C_2N_2—859
Baker, William O. and Charles P. Smyth. Mechanism of orientation in *i*-amyl bromide glasses—574
Band, William. Dissociation treatment of condensing systems—324: Part II.—927
—— On the nature of the liquid state—1114(L)
Barker, E. F. Vibrational assignments in ethane—277(L)
—— (see Gage, D. M.)—455
Barr, E. S. and C. J. Craven. Further study of the absorption of aqueous solutions at 4.72μ—8
Bateman, J. B. and Leslie A. Chambers. Surface elasticity of protein films. I. Egg albumin—244
Bath, Jean (see Ellis, Joseph W.)—862
Bauer, S. H. Inversion of the partition function to determine the density of energy states—1097
Baughan, E. C. Electrostatic effects on ionization constants—951
Bayliss, N. S. and A. L. G. Rees. Interpretation of the visible absorption of bromine—854(L)
Beeck, Otto and Ahlborn Wheeler. Activated adsorption of nitrogen on iron at 23° and 100°C, and ammonia synthesis—631(L)
Beeson, Carrol M. and Don M. Yost. Equilibrium dissociation and thermodynamic constants of nitrosyl chloride. Comparison with spectroscopic data—44
Berger, J. A. (see Sidhu, S. S.)—322
Bethe, H. A. and J. G. Kirkwood. Critical behavior of solid solutions in the order-disorder transformation—578
Blewett, J. P., H. A. Liebhafsky and E. F. Hennelly. Vapor pressure and rate of evaporation of barium oxide—478
Bonhoeffer, K. F. Discussion—645
——, **K. H. Geib and O. Reitz.** On the rate of ionization in aqueous solution of the carbon-hydrogen bond in aliphatic compounds—664(S)
Bonner, L. G. (see Kirby Smith, J. S.)—880
Born, Max. Thermodynamics of crystals and melting—591
Boyd, G. E. (see Harkins, William D.)—203(L)
Boyd, R. N. (see Hildebrand, J. H.)—1094
—— **and Helmut R. R. Wakeham.** Effect of temperature on the structure of mercury—958
Bramley, Arthur (see Brewer, A. Keith)—972(L)
—— **and A. Keith Brewer.** Thermal method for the separation of isotopes—553(L)
Breit, Gregory. Discussion—652
Brescia, Frank. Prediction of rate constants from equilibrium data for reactions in D_2O-H_2O mixtures—310
Brewer, A. Keith (see Bramley, Arthur)—553(L)
—— **and Arthur Bramley.** Effect of baffles on the thermal separation of gases—972(L)
Brody, J. Heterophase fluctuations and pretransition phenomena—972(L)
Bruce, H. D. (see McBain, J. W.)—818
Buerger, Newton W. The polymorphism of Cu_2S, and the relations between the solid phases in the system Cu_2S-CuS—1067(L)
Burcik, E. J. and Don M. Yost. Heat capacity of cyanogen gas—1114(L)
Burk, Robert E. (see Laskowski, Leona)—465
Burton, Milton. Discussion—679, 680, 682, 780, 781
—— Remarks on the calculation of bond strengths—1072
—— (see Davis, Thomas W.)—1075
—— (see Taylor, H. Austin)—414, 572, 675(S)
——, **H. Austin Taylor and Thomas W. Davis.** Chain length and chain ending processes in acetaldehyde decomposition—1080
Buswell, A. M., R. L. Maycock and W. H. Rodebush. Infra-red absorption of hydrogen fluorides—856(L)
Byers, Walter H. Electric moment of cellosolves—175

Cameron, Donald M., William C. Sears and Harald H. Nielsen. Infra-red absorption by hydrogen selenide, deuterium selenide and deutero-hydrogen selenide—994
Campbell, Hallock C. (see Rice, O. K.)—700(S)
Carr, Emma P. and Hildegard Stücklen. Electronic transition of the Rydberg series type in the absorption spectra of hydrocarbons—631(L)
Carson, S. C. (see Bailey, C. R.)—859
Cernuschi, F. and H. Eyring. Elementary theory of condensation—547
Chambers, Leslie A. (see Bateman, J. B.)—244
Christiansen, J. A. Discussion—718, 724, 765
—— On intramolecular diffusion, quantum-theory, and the calculation of unimolecular velocity-constants—653(S); Discussion—656
Clark, Chas. R. (see Stearn, Allen E.)—970
Cleaves, A. P. and E. K. Plyler. Infra-red absorption spectrum of methylamine vapor—563
Cleveland, Forrest F. and M. J. Murray. Depolarization measurements on raman lines by an easy, accurate method—396
Coffin, C. C. (see Dacey, J. R.)—315
Cohen, Karl and Harold C. Urey. Erratum: The vapor-pressures of ortho- and parahydrogen and ortho- and paradeuterium—1068(L)
—— **and Harold C. Urey.** Van der Waals' forces and the vapor pressures of ortho- and parahydrogen and ortho- and paradeuterium—157
—— **and H. C. Urey.** Vapor pressures of *o*- and *p*-H_2 and D_2—438(L)

Coulson, C. A. Lengths of the links of unsaturated hydrocarbon molecules—1069
Craven, C. J. (see Barr, E. S.)—8
Crawford, Bryce L., Jr. Infra-red and Raman spectra of polyatomic molecules. IX. Dimethyl acetylene, C_4H_6—555
—— Raman spectrum and vibrational frequencies of methyl acetylene—140(L)
—— **and John T. Edsall.** Infra-red and raman spectra of polyatomic molecules. Vi. Triborine triamine, $B_3N_3H_6$—223
—— **and Lois Joyce.** Infra-red and Raman spectra of polyatomic molecules. VIII. Dimethyl ether—307
—— **and W. W. Rice.** Internal rotation in dimethyl acetylene—437(L)
Crist, R. H. Discussion—722, 724
—— **and J. E. Wertz.** Kinetics of the oxidation of hydrogen sensitized by nitrogen dioxide—719(S)
Cross, Paul C. Discussion—680

Dacey, J. R. and C. C. Coffin. Thermal decomposition of methylene diacetate, ethylidene diacetate and paracetaldehyde at low pressures—315
Daniels, Farrington. Discussion—674, 764, 766
—— **and Preston L. Veltman.** Decomposition of ethyl bromide and the collision theory of first-order reactions—756(S)
Davis, Thomas W.—Discussion—681
—— (see Burton, Milton)—1080
—— **and Milton Burton.** Potential energy relationships in normal and excited acetaldehyde—1075
Dennison, David M. (see Slawsky, Z. I.)—509, 522
Dervichian, D. G. Changes of phase and transformations of higher order in monolayers—931; erratum—1113(L)
Dow, R. B. Inhibition of crystallization of rubber by high pressure—201(L)
Dwyer, Robert J. Persistence of molecular vibration in collisions—40

Edsall, John T. (see Crawford, Bryce L., Jr.)—223
—— (see Otvos, John W.)—632(L)
Edwards, A. E. Discussion—680
Eirich, F. and R. Simha. Contribution to the theory of viscous flow reactions for chain-like molecular substances—116
Ellis, Joseph W. and Jean Bath. Near infra-red absorption spectra of pentaerythritol and diketopiperazine obtained with plane polarized light—862
Ewing, Lewis M. (see Smith, Alva, W.)—632(L)
Eyring, Henry. Discussion—644, 645, 656, 792, 793, 794
—— (see Cernuschi, F.)—547
—— (see Gorin, Everett)—633(S)
——, **S. Glasstone and K. J. Laidler.** Application of the theory of absolute reaction rates to overvoltage—1053

Fortess, Fred E. (see Freed, Simon)—824
Franck, James. Discussion—652
Freed, Simon and H. G. Thode. Note: On the nature of the solutions of metallic sodium in liquid ammonia—85
——, **H. L. McMurry and E. J. Rosenbaum.** On some properties of white sapphire—853(L)
——, **S. I. Weissman, Fred E. Fortess and H. F. Jacobson.** Ions of europium distributed between different configurations in honogeneous solutions—824
Frenkel, J. General theory of heterophase fluctuations and pretransition phenomena—538
—— Statistical theory of condensation phenomena—200(L)
Frumkin, A. Calculation of the absolute potential of the normal calomel electrode from the free energy of hydration of gaseous ions—552(L)
Fuller, H. Q., L. W. Phillips and G. M. Almy. Fluorescence of diacetyl: Quantum yield and quenching by iodine—973(L)

Gage, D. M. and E. F. Barker. Infra-red absorption spectrum of boron trifluoride—455
Geib, K. H. (see Bonhoeffer, K. F.)—664(S)
Gershinowitz, H. Discussion—674, 681, 735
Gillespie, L. J. Separation of gases by thermal diffusion—438(L)
—— Simple theory for separation of gases by thermal diffusion—530
Glasstone, S. (see Eyring, H.)—1053
Glockler, George (see Taylor, T. I.)—851
—— **and W. Horwitz.** Sulfur bands and an attempt to obtain HS bands—857(L)
—— **and G. R. Leader.** Raman effect of dibromo-difluoromethane and dibromo-chloromethane—553(L)
—— **and G. R. Leader.** Raman effect of difluoromethane—382(L)
—— **and G. R. Leader.** Raman effect of fluorotrichloromethane—278(L)
Goranson, R. W. and W. A. Zisman. Electrical properties of multilayers—492
Gordon, A. R. Extrapolation of conductance data for the monovalent nitrates and iodates by means of the extended Onsager-Shedlovsky equation—221
—— (see James, W. A.)—89, 963
—— (see LeRoy, D. J.)—314
Gordon, Newell T., Frederick Seitz and Frank Quinlan. Blackening of zinc sulfide phosphors—4
Gordy, Walter. Spectroscopic comparison of the proton-attracting properties of liquids—93
—— Spectroscopic evidence of hydrogen bonds: aniline and some substituted phenols—167
—— Spectroscopic evidence of hydrogen bonds: chloroform and bromoform in donor solvents—163
—— **and Philip C. Martin.** Infra-red absorption of HCl in solution—99
Gorin, Evérett. Photolysis of aldehydes and ketones in the presence of iodine vapor—256
——, **Walter Kauzmann and John Walter.** Optical activity of the sugars—327
——, **Walter Kauzmann, John Walter and Henry Eyring.** Reactions involving hydrogen and the hydrocarbons—633(S)
Gorin, Manuel H. Equilibrium theory of ionic conductance—405

Grahame, D. C. Discussion—680, 748, 774, 779, 780, 793
—— (see Rollefson, G. K.)—775(S)
Groetzinger, Gerhart and William D. Harkins. New method for the investigation of the electrical properties of multilayers—204(L)
Guggenheim, E. A. Grand partition functions and so-called "thermodynamic probability"—103

Ham, W. R. Diffusion of hydrogen through oxygen-free copper—903
—— (see Simons, J. H.)—899
Hanson, William E. (see Taylor, H. Austin)—418
Harkins, William D. Discussion—674
—— (see Groetzinger, Gerhart)—204(L)
—— **and G. E. Boyd.** Viscosity of two-dimensional systems: Effect of pressure and temperature, and detection of phase transitions in monolayers—203(L)
—— **and Richard W. Mattoon.** Film potentials of stearate multilayers and other dielectrics on metal surfaces—186
Harvey, G. G. X-ray diffraction in liquid ethyl alcohol—878
Haupt, R. F. and E. Teller. Specific heat and double minimum problem of NH_3—925
Henkin, H. and H. Austin Taylor. Viscosity and molecular diameter of azomethane—829
Hennelly, E. F. (see Blewett, J. P.)—478
Henri, Victor and Lucy W. Pickett. Ultraviolet absorption spectra of 1-3 cyclohexadiene—439
Henriques, F. C., Jr. (see Noyes, W. Albert, Jr.)—767(S)
Herbert, W. S. (see Howe, John P.)—277(L)
Herman, R. C. (see Williams, V.)—802
—— **and R. Hofstadter.** Erratum and Addendum: Vibration spectra and molecular structure. VII. Further infra-red studies on the vapors of some carboxylic acids—630(L)
—— **and R. Hofstadter.** Vibration spectra and molecular structure. VII. Further infra-red studies on the vapors of some carboxylic acids—460
Herzfeld, K. F. Discussion—656, 674, 780, 789
—— (see Rice, F. O.)—671(S), 673
Hildebrand, J. H. Liquid structure and energy of vaporization—1
—— Liquid structure and entropy of vaporization—233
——, **H. R. R. Wakeham and R. N. Boyd.** The intermolecular potential of mercury—1094
Hirschfelder, J. O. Discussion—656, 793, 794
—— **and E. Wigner.** Some quantum-mechanical considerations in the theory of reactions involving an activation energy—616
Hobbs, Marcus E. Note on the solvent effect in dipole moment measurements—849
—— Solid state of H_2, HD and D_2—318
Hofstadter, R. (see Herman, R. C.)—460, 630(L)
—— (see Williams, V.)—802
Hollingshead, E. A. (see James, W. A.)—89
Horwitz, W. (see Glockler, G.)—857(L)
Howe, John P. and W. S. Herbert. Coupling of vibrations with electronic levels in rare earth compounds—277(L)
Huffman, John R. (see Urey, Harold C.)—138(L)
Hultgren, Ralph. Concerning the existence of a two-phase region in the ordering process—202(L)

Jacobson, H. F. (see Freed, Simon)—824
Jahn, Francis P. (see Taylor, H. Austin)—470
—— **and Austin H. Taylor.** Thermal decomposition of azomethane in presence of nitric oxide—474
James, W. A. and A. R. Gordon. Variation of the differential diffusion constant of hydrochloric acid with temperature—963
——, **E. A. Hollingshead and A. R. Gordon.** Differential diffusion constants of hydrochloric and sulphuric acids—89
Johnson, A. A. and T. E. Phipps. Differential method applied to the surface ionization of sodium halides on tungsten—1039
Johnston, H. P. (see Stearn, Allen E.)—970
Joris, George G. and Hugh S. Taylor. Exchange reactions of nitrogen isotopes on iron and tungsten surfaces—893
Joyce, Lois (see Crawford, Bryce L.)—307

Kane, Brother Gabriel, F.S.C. Equation of state of frozen neon, argon, krypton and xenon—603
Kassel, L. S. Discussion—709, 724, 734, 735, 753, 754, 764
Kauzmann, Walter (see Gorin, Everett)—327
—— (see Gorin, Everett)—633(S)
Kiang, A. T. (see Wu, Ta-You)—178
Kirby-Smith, J. S. and L. G. Bonner. Raman spectra of gaseous substances. 1. Apparatus and the spectrum of methylamine—880
Kirkwood, John G. Dielectric polarization of polar liquids—911
—— Molecular distribution in liquids—919
—— Remarks on the hole theory of condensation—908
—— Remarks on the theory of optical activity—139(L)
—— Skeletal modes of vibration of long chain molecules—506
—— (see Bethe, H. A.)—578
—— **and F. H. Westheimer.** Errata: The electrostatic influence of substituents on the dissociation constants of organic acids. I and II—437(L)
Kistiakowsky, G. B. and W. W. Ransom. Polymerization of gaseous butadiene—725(S)
—— **and W. W. Rice.** Gaseous heat capacities. I. The method and the heat capacities of C_2H_6 and C_2D_6—281
——, **J. R. Lacher and Fred Stitt.** Low temperature gaseous heat capacities of C_2H_6 and C_2D_6—289
Kolthoff, I. M. and A. S. O'Brien. Studies on aging and formation of precipitates. XXIX. The thermal aging and abnormal physical properties of fresh silver bromide—401
Kornfeld, G. Absolute values of the velocity constants in the formation of semiquinone—274
Koteswaram, P. Molecular association in fatty acids—88(L)
Kyropoulos, S. On the viscosity of nonpolar liquids—52

Lacher, J. R. (see Kistiakowsky, G. B.)—289
Laidler, E. J. (see Eyring, H.)—1053

Lambert, R. H. (see Sheppard, S. E.)—265, 426
LaMer, Victor K. Discussion—662, 674
Landau, H. G. Ignition of gases by local sources. II. Ellipsoid sources—112
Laskowski, Leona and Robert E. Burk. Probable length of hydrocarbon chains—465
Latimer, Wendell M., Kenneth S. Pitzer and Cyril M. Slansky. Free energy of hydration of gaseous ions, and the absolute potential of the normal calomel electrode —108
Leader, G. R. (see Glockler, Geo.)—278(L), 382(L), 553(L)
Leighton, P. A. Discussion—645, 681, 774, 781
LeRoy, D. J. and A. R. Gordon. Transference numbers of sodium acetate in aqueous solution—314
Levene, P. A. (see Rothen, Alexandre)—975
Levine, S. On the interaction of two colloidal particles, using the complete Debye-Hückel equation—831
Lewis, Bernard. Discussion—709, 724
—— (see von Elbe, Guenther)—710(S)
—— **and Guenther von Elbe.** Experimental evidence for incomplete rotational excitation in diatomic gases at ordinary temperatures and pressures—197
Lewis, George L. and C. P. Smyth. Internal rotation and dipole moment in succinonitrile—1085
Li, Norman C. C. Dipole variation of ether—1068(L)
Liebhafsky, H. A. (See Blewett, J. P.)—478
Lind, S. C. Chemical activation by gaseous ionization—790(S): Discussion—792, 793, 794
Lyddane, R. H. (see Sklar, A. L.)—374

Magee, John L. Discussion—652
Maier, C. G. Separation of gases by diffusion—854(L)
Martin, Philip C. (see Gordy, Walter)—99
Matheson, Max S. and J. William Zabor. Fluorescence of carbonyl compounds in the gas phase—536
Mattoon, Richard W. (see Harkins, William D.)—186
Maycock, R. L. (see Buswell, A. M.)—856(L)
Mayer, Joseph E. (see Streeter, S. F.)—1025
—— **and S. F. Streeter.** Phase transitions—1019
McBain, J. W., R. C. Bacon and H. D. Bruce. Optical surface thickness of pure water—818
McMahon, H. O. (see Stephenson, C. C.)—614
McMurray, H. L. (see Freed, Simon)—853(L)
Meehan, E. J. and G. C. Nutting. Line absorption spectra of rare earth ions in crystals—1002
Mills, Alexander (see Urey, Harold C.)—138(L)
Moore, George E. (see Parks, George S.)—1066(L)
Morris, J. C. Discussion—734, 735
Mulliken, Robert S. Intensities of electronic transitions in molecular spectra. I. Introduction—14: II. Charge-transfer spectra—20: III. Organic molecules with double bonds. Conjugated dienes—121: IV. Cyclic dienes and hyperconjugation—339: V. Benzene—353: VI. Molecular refractivities of organic compounds—356: VII. Conjugated polyenes and carotenoids—364: VIIIa. Odd-numbered conjugated polyene chain molecules and organic dyes (with notes on optical anisotrophy and Raman intensities)—570
Murphy, George M. and John E. Vance. Thermodynamic properties of hydrogen fluoride and fluorine from spectroscopic data—806
Murray, G. E. and B. E. Warren. X-ray study of benzene-cyclohexane mixtures—141
Murray, M. J. (see Cleveland, Forrest F.)—396

Nielsen, Harold H. (see Cameron, Donald M.)—994
Nordheim, G. (see Sponer, H.)—207
Noyes, W. Albert, Jr. Discussion—680, 774, 779, 789, 792
—— **and F. C. Henriques, Jr.** Fluorescence and photochemical kinetics of polyatomic molecules in the gas phase—767(S)
Nutting, G. C. (see Meehan, E. J.)—1002

O'Brien, A. S. (see Kolthoff, I. M.)—401
Ogg, Richard A., Jr. Discussion—645, 679, 681, 748, 753, 766, 774, 779
—— **and W. J. Priest.** Kinetics of the vapor phase reaction of cyclopropane with iodine—736(S)
Oldenberg, O. and F. F. Rieke. Kinetics of OH radicals as determined by their absorption spectrum. V. Spectroscopic determination of a rate constant—485
—— **and H. S. Sommers, Jr.** Explosion limits of the hydrogen-oxygen mixture—279(L)
Otvos, John W. and John T. Edsall. Raman spectra of deuterium substituted guanidine and urea—632(L)

Parks, George S. and George E. Moore. The heat of combustion of isopropanol—1066(L)
Pauling, Linus. Discussion—748
Pease, Robert N. Discussion—765
—— Experimental basis for the theory of quasiunimolecular reactions—749(S): Discussion—752, 754, 755
Perrier, C. and E. Segrè. Some chemical properties of element 43. II—155
Phillips, L. W. (see Fuller, H. Q.)—973(L)
Phipps, T. E. (see Johnson, A. A.)—1039
Pickett, Lucy W. (see Henri, Victor)—439
Pirenne, Maurice Henri. Diffraction of x-rays by gas molecules. Comparison with electron diffraction and a discussion of the results for $SiHCl_3$—144
Pitzer, Kenneth S. Corresponding states for perfect liquids—583
—— Symmetry number and thermodynamic functions for molecules having double minimum vibrations—251
—— (see Latimer, Wendell M.)—108
Plyler, E. K. (see Cleaves, A. P.)—563
Potvin, Roger (see Steacie, E. W. R.)—782(S)
Priest, W. J. (see Ogg, Richard A., Jr.)—736(S)

Quinlan, Frank (see Gordon, Newell T.)—4

Ransom, W. W. (see Kistiakowsky, G. B.)—725(S)
Redlich, Otto. Anharmonicity of CH vibrations and product rule—856(L)
Rees, A. L. G. (see Bayliss, N. S.)—854(L)
Reitz, O. (see Bonhoeffer, K. F.)—664(S)
Rice, F. O. Discussion—674, 734, 735, 748, 766

Rice, F. O. and K. F. Herzfeld. Mechanism of some chain reactions—671(S): Discussion—673
—— **and E. Teller.** Corrections to paper "Role of free radicals in elementary organic reactions"—199
—— **and W. D. Walters.** Thermal decomposition of diacetyl—1015
Rice, O. K. Discussion—645, 709, 718, 753, 765, 766, 793
—— Further remarks on the solid-liquid equilibrium in argon—136(L)
—— Nature of the fusion process in argon—883
—— **and Hallock C. Campbell.** Explosion of ethyl azide in the presence of diethyl ether—700(S)
Rice, W. W. (see Crawford, Bryce L., Jr.)—437(L)
—— (see Kistiakowsky, G. B.)—281
Rieke, F. F. On the quantum efficiency of photosynthesis—238
—— (see Oldenberg, O.)—485
Roberts, Irving (see Urey, Harold C.)—138(L)
——, **Harry G. Thode and Harold C. Urey.** Concentration of C^{13} by chemical exchange—137(L)
Rodebush, W. H. (see Buswell, A. M.)—856(L)
Rollefson, G. K. Discussion—779, 780
—— **and D. C. Grahame.** Effect of temperature on the predissociation of photoactivated acetaldehyde molecules—775(S)
Rosenbaum, E. J. (see Freed, Simon)—853(L)
—— **and T. A. Ashford.** Raman spectrum of antimony trimethyl—554(L)
Rothen, Alexandre and P. A. Levene. Rotatory dispersion and absorption spectra of carboxylic acids and hydrocarbons containing a phenyl or cyclohexyl group—975

Sayvetz, Aaron. Kinetic energy of polyatomic molecules—383
Scatchard, George. Nature of the critical complex and the effect of changing medium on the rate of reaction—657(S): Discussion—663
Sears, William C. (see Cameron, Donald M.)—994
Segrè, E. (see Perrier, C.)—155
Seitz, Frederick (see Gordon, Newell T.)—4
Selikowitz, Arthur L. Solution of an equation occurring in the theory of consecutive reactions—278(L)
Semenoff, N. On the kinetics of complex reactions—683(S)
Seward, R. P. and J. H. Simons. Scattering of slow electrons in, and apparent electron affinity of boron fluoride—2
Sheppard, S. E., R. H. Lambert and R. D. Walker. Optical sensitizing of silver halides by dyes. I. Adsorption of sensitizing dyes—265; II. The mechanism of optical sensitizing and the quantum equivalent—426
Sidhu, S. S. and J. A. Berger. Density of single crystals of cupric acetate monohydrate—322
da Silveira, A. Raman effect of concentrated electrolytic solutions—380(L)
Silver, Samuel. Inertial effects in the skeletal vibrations of tetramethylmethane and tetramethylsilicon—1113(L)
Simha, R. Errata: On transport phenomena in the cage model of liquids—857(L)
—— On transport phenomena in the cage model of liquids—202(L)
—— (see Eirich, F.)—116
Simons, J. H. (see Seward, R. P.)—2
—— **and W. R. Ham.** Diffusion of gases through metals from a chemical point of view—899
Sklar, A. L. Near ultraviolet absorption of substituted benzenes—984
—— (see Sponer, H.)—207
—— **and R. H. Lyddane.** Antisymmetric molecular orbitals. II. Calculation of integrals—374
Slansky, Cyril M. (see Latimer, Wendell M.)—108
Slawsky, Z. I. and David M. Dennison. Centrifugal distortion of axial molecules—509
—— **and David M. Dennison.** Potential functions of the methyl halides—522
Smith, Alva W. and Lewis M. Ewing. Ultrasonic velocities in and adiabatic compressibilities of mixtures of acetic acid and water—632(L)
Smith, John O., Jr. and Hugh S. Taylor. Reactions of methyl radicals with deuterium, ethane, neopentane, butane and isobutane—390
Smyth, Charles P. (see Baker, William O.)—574
—— (see Lewis, George L.)—1085
Sommers, H. S., Jr. (see Oldenberg, O.)—279(L)
Sponer, H., G. Nordheim, A. L. Sklar and E. Teller. Analysis of the near ultraviolet electronic transition of benzene—207
—— **and E. Teller.** On the application of the Franck-Condon principle to the absorption spectrum of $HgCl_2$—382(L)
Squire, Charles F. Exchange force transitions in paramagnetic compounds—139(L)
Steacie, E. W. R. Discussion—674, 789
—— **and Roger Potvin.** Cadmium photosensitized reactions of ethane—782(S)
Stearn, Allen E., H. P. Johnston and Chas. R. Clark. Significance of activation entropy in catalytic mechanisms—970
Stephenson, C. C. and H. O. McMahon. Rotational partition function of the water molecule—614
Stevenson, D. P. Thermodynamic functions of cyanogen and the cyanogen halides—171
Stewart, G. W. Apparent molal ionic volumes in aqueous solutions of strong electrolytes—381(L)
—— Variation in the structure of water in ionic solutions—869
Stinchcomb, G. A. Infra-red absorption spectrum of normal pentane—853(L)
Stitt, Fred. Heat capacity of cyanogen gas—1115(L)
—— Infra-red and Raman spectra of polyatomic molecules. VII. C_2D_6—297
—— (see Kistiakowsky, G. B.)—289
Streeter, S. F. (see Mayer, Joseph E.)—1019
—— **and Joseph E. Mayer.** Statistical mechanics of condensing systems. VI. The treatment of a system of constant energy—1025
Stücklen, Hildegard (see Carr, Emma P.)—631(L)
Sutherland, G. B. B. M. The spectroscopic determination of the carbon-chlorine distance in methyl chloride—1066(L)

Taschek, Richard and Dudley Williams. Infra-red transmission of several organic compounds near the melting point—11
Taylor, H. Austin. Discussion—644, 679
—— (see Burton, Milton)—1080
—— (see Henkin, H.)—829
—— (see Jahn, Francis P.)—474
—— **and Milton Burton.** Interpretation of the mechanism of a thermal decomposition from photochemical evidence—414
—— **and Milton Burton.** Reactions between methyl radicals—675(S)
—— **and Milton Burton.** Remarks on the calculation of bond strength in methane—572
—— **and William E. Hanson.** Thermal chlorination of chloroform—418
—— **and Francis P. Jahn.** Thermal decomposition of azomethane—470
Taylor, Hugh S. (see Joris, George G.)—893
—— (see Smith, John O., Jr.)—390
Taylor, T. I. and George Glockler. Note on the construction and operation of a thermal diffusion column for the separation of isotopes—851
Teller, E. (see Haupt, R. F.)—925
—— (see Rice, F. O.)—199
—— (see Sponer, H.)—207
—— (see Sponer, H.)—382(L)
Thode, Harry G. (see Freed, Simon)—85
—— (see Roberts, Irving)—137(L)
—— (see Urey, Harold C.)—138(L)
—— **and H. C. Urey.** Further concentration of N^{15}—34
Thompson, H. W. Fluorescence of glyoxal vapor—855(L)
—— Infra-red band of formic acid at 7525A—453
—— Infra-red spectrum of methylamine—448
—— Vibration-rotation bands of some polyatomic molecules in the photographic infra-red—441
—— Ultraviolet absorption of nitrous acid—136(L)

Urey, Harold C. (see Cohen, Karl)—157
—— (see Cohen, Karl)—438(L)
—— (see Cohen, Karl)—1068(L)
—— (see Roberts, Irving)—137(L)
—— (see Thode, H. G.)—34
——, **Alexander Mills, Irving Roberts, Harry G. Thode and John R. Huffman.** Vapor pressures and exchange constants of isotopic compounds—138(L)

Vance, John E. (see Murphy, George M.)—806
Van Vleck, J. H. Jahn-Teller effect and crystalline stark splitting for clusters of the form XY_6—72
—— On the magnetic behavior of vanadium, titanium and chrome alum—61
Veltman, Preston L. (see Daniels, Farrington)—756(S)
Verhoek, Frank. Discussion—755
von Elbe, Guenther. Discussion—680, 709, 718
—— (see Lewis, Bernard)—197
—— **and Bernard Lewis.** Discussion—723
—— **and Bernard Lewis.** Mechanisms of complex reactions and the association of H and O_2—710(S)

Wakeham, Helmut R. R. (see Boyd, Robert Neilson)—958
—— (see Hildebrand, J. H.)—1094
Walker, R. D. (see Sheppard, S. E.)—265, 426
Wall, F. T. Infra-red absorption spectrum of benzoic acid—87(L)
Walter, John (see Gorin, Everett)—327
—— (see Gorin, Everett)—633(S)
Walters, W. D. (see Rice, F. O.)—1015
Wang, Sheng-Nien. On the ellipsoids of polarization of bonds and octets—1012
Wannier, Gregory H. Melting as an order-disorder transition—810
Warren, B. E. (see Murray, G. E.)—141
Weissman, S. I. (see Freed, Simon)—824
Wertz, J. E. (see Crist, R. H.)—719(S)
West, W. Influence of temperature and pressure on the infra-red absorption spectrum of gaseous and liquid hydrogen chloride up to the critical state—795
Westheimer, F. H. (see Kirkwood, J. G.)—437(L)
Wheeler, Ahlborn (see Beeck, Otto)—631(L)
White, Addison H. Hindered molecular rotation and the dielectric behavior of condensed phases—58
Wigner, Eugene P. Discussion—681, 753, 765
—— Some remarks on the theory of reaction rates—646(S): Discussion—650, 652
—— (see Hirschfelder, J. O.) —616
Williams, Dudley (see Taschek, Richard)—11
Williams, V., R. Hofstadter and R. C. Herman. Vibration spectra and molecular structure. VIII. Absorption spectra of light and heavy phenol and aniline vapors—802
Wilson, E. Bright, Jr. Method of obtaining the expanded secular equation for the vibration frequencies of a molecule—1047
—— Partition functions for partly classical systems—948
Winans, J. G. Discussion—774, 780, 789
Wu, Ta-You. Vibrational spectra of 1, 2 dihalogen ethanes and the question of internal rotation—965
—— **and A. T. Kiang.** Potential function of the acetylene molecule. I—178

Yost, Don M. (see Beeson, Carrol M.)—44
—— (see Burcik, E. J.)—1114(L)

Zabor, J. William (see Matheson, Max S.)—536
Zisman, W. A. (see Goranson, R. W.)—492
Zumwalt, Lloyd R. and Richard M. Badger. Absorption band of folmaldoxime at λ9572—235
—— **and Richard M. Badger.** The N−H harmonic band of pyrrole at λ9900, and the structure of the pyrrols molecule—629
—— **and Richard M. Badger.** Structure of the O−H bands in the vapors of halogen substituted alcohols—87(L)

Analytic Subject Index to Volume 7

References with (L) are to Letters to the Editor; and with (S) to Symposium on "The Kinetics of Homogeneous Gas Reactions."

Absolute Potential

Of calomel electrode and the free energy of hydration of gaseous ions, W. M. Latimer, K. S. Pitzer and C. M. Slansky—108

Calculation of the absolute potential of the normal calomel electrode from the free energy of hydration of gaseous ions, A. Frumkin—552(L)

Absorption Spectra

Application of the Franck-Condon principle to the absorption spectrum of $HgCl_2$, H. Sponer and E. Teller—382(L)

Of bromine, interpretation of the visible absorption, N. S. Bayliss and A. L. G. Rees—854(L)

Electronic transition of the Rydberg series type in the absorption spectra of hydrocarbons, E. P. Carr and H. Stücklen—631(L)

Infra-Red

Of analine and some substituted phenols, W. Gordy—167

Of aqueous solutions at 4.72μ, E. S. Barr and C. J. Craven—8

Of benzoic acid, F. T. Wall—87(L)

Of boron trifluoride, D. M. Gage and E. F. Barker—455

Of Carboxylic acid vapors, R. C. Herman and R. Hofstadter—460

Of Carboxylic acid vapors (errata), R. C. Herman and R. Hofstadter—630(L)

Of chloroform and bromoform in solvents—W. Gordy—163

Of cyanogen gas, C. R. Bailey and S. C. Carson—859

Of dihalogen ethanes, Ta-You Wu—965

Of dimethyl acetylene, B. L. Crawford, Jr.—555

Of dimethyl ether B. L. Crawford, Jr. and L. Joyce—307

Of ethane, C_2D_6, F. Stitt—297

Of ethane, vibrational assignments, E. F. Barker—277(L)

Of formaldoxime at λ9572, L. R. Zumwalt and R. M. Badger—235

Of formic acid band at 7525A, H. W. Thompson—453

And hydrogen bonds; proton-attracting properties in liquids, W. Gordy—93

Of hydrochloric acid in solution, W. Gordy and P. C. Martin—99

Of hydrogen chloride, influence of temperature and pressure on gas and liquid up to the critical state, W. West—795

Of hydrogen fluoride, A. M. Buswell, R. L. Maycock and W. H. Rodebush—856(L)

Of hydrogen selenide, D. M. Cameron, W. C. Sears and H. H. Nielsen—994

Of light and heavy phenols and aniline vapors, V. Williams, R. Hofstadter and R. C. Herman—802

Of methylamine, H. W. Thompson—448

Of normal pentane, G. A. Stinchcomb—853(L)

Of methylamine, A. P. Cleaves and E. K. Plyler—563

Of O—H bands in halogen substituted alcohols, L. R. Zumwalt and R. M. Badger—87(L)

Of O—H radicals, O. Oldenberg and F. F. Rieke—485

Of organic compounds, R. Taschek and D. Williams—11

Of pentaerythritol and diketopiperazine with plane polarized light, J. W. Ellis and J. Bath—862

Of some polyatomic molecules, vibration rotation bands of, H. W. Thompson—441

Of pyrrole at λ9900, L. R. Zumwalt and R. M. Badger—629

Of triborine triamine, $B_3N_3H_6$, B. L. Crawford, Jr. and J. T. Edsall—223

Line absorption spectra of rare earth ions in crystals, E. G. Meehan and G. C. Nutting—1002

Rotary dispersion and absorption spectra of carboxylic acids and hydrocarbons containing a phenol or cyclohexyl group, A. Rothen and P. A. Levene—975

Sulfur bands and an attempt to obtain HS bands, G. Glockler and W. Horwitz—857(L)

Ultraviolet

Of benzene, H. Sponer, G. Nordheim, A. L. Sklar and E. Teller—207

Of 1-3 cyclohexadiene, V. Henri and L. W. Pickett—439

Of nitrous acid, H. W. Thompson—136(L)

Of substituted benzenes, A. L. Sklar—984

Apparatus and Methods

Depolarization measurements on raman lines by an easy, accurate method, F. F. Cleveland and M. J. Murray—396

For measuring gaseous heat capacities, G. B. Kistiakowsky and W. W. Rice—281

Method for the investigation of the electric properties of multilayers, G. Groetzinger and W. D. Harkins—204(L)

Raman spectra of gaseous substances. 1. Apparatus and the spectrum of methylamine, J. S. Kirby-Smith and L. G. Bonner—880

Separation of gases by thermal diffusion, A. Bramley and A. K. Brewer—553(L); L. J. Gillespie—438(L); Construction and operation, T. I. Taylor and G. Glockler—851; Effect of baffles, A. K. Brewer and A. Bramley—972(L)

Collision Phenomena

Experimental evidence for incomplete rotational excitation in diatomic gases at ordinary temperatures and pressures, B. Lewis and G. von Elbe—197

Persistence of vibration in, R. J. Dwyer—40

Conductance

Equilibrium theory of ionic conductance, M. H. Gorin—405

Extrapolation of conductance data for the monovalent nitrates and iodates by means of the extended Onsager-Shedlovsky equation, A. R. Gordon—221

Crystalline State

Concerning the existence of a two-phase region in the ordering process, R. Hultgren—202(L)
Coupling of vibrations with electronic levels in rare earth compounds, J. P. Howe and W. S. Herbert—277(L)
Density of single crystals of cupric acetate monohydrate, S. S. Sidhu and J. A. Berger—322
Equation of state of frozen neon, argon, krypton, and xenon, Brother G. Kane, F. S. C.—603
Fusion equilibrium in argon, O. K. Rice—136(L)
Fusion process in argon, O. K. Rice—883
Of H_2, HD and D_2, M. E. Hobbs—318
Inhibition of crystallization of rubber by high pressure, R. B. Dow—201(L)
Melting as an order-disorder transition, G. H. Wannier—810
Polymorphism of Cu_2S, and the relations between the solid phases in the system Cu_2S-CuS, N. W. Buerger—1067(L)
Stark splitting for clusters of the form XY_6, J. H. Van Vleck—72
Thermal aging and abnormal physical properties of fresh silver bromide, I. M. Kolthoff and A. S. O'Brien—401
Thermodynamics of crystals and melting, M. Born—591
White sapphire, properties of, S. Freed, H. L. McMurry and E. J. Rosenbaum—853(L)

Density

Of cupric acetate monohydrate, S. S. Sidhu and J. A. Berger—322

Dielectric Constants

Dielectric polarization of polar liquids, J. G. Kirkwood—911
And hindered rotation, A. H. White—58

Diffusion

Construction and operation of apparatus, T. I. Taylor and G. Glockler—851
Differential diffusion constants of hydrochloric and sulphuric acids, W. A. James, E. A. Hollingshead and A. R. Gordon—89
Effect of baffles, A. K. Brewer and A. Bramley—972(L)
Of gases through metals, J. H. Simons and W. R. Ham—899
Of hydrogen through oxygen-free copper, W. R. Ham—903
Separation of gases by thermal diffusion, A. Bramley and A. K. Brewer—553(L); L. J. Gillespie—438(L); C. G. Maier—854(L)
Simple theory, L. J. Gillespie—530
Variation of the differential diffusion constant of hydrochloric acid with temperature, W. A. James and A. R. Gordon—963

Dipole Moments

Of cellosolves, W. H. Byers—175
And internal rotation in succinonitrile, G. L. Lewis and C. P. Smyth—1085
On the solvent effect, M. E. Hobbs—849
Variation of dipole moment in ether, N. C. C. Li—1068(L)

Electron Affinity and Scattering

Of boron fluoride, R. P. Seward and J. H. Simons—2

Element 43

Some chemical properties of, C. Perrier and E. Segrè—155

Errata

Changes of phases and transformations of higher order in monolayers, D. G. Dervichian—1113(L)
Corrections to paper "The role of free radicals in elementary organic reactions," F. O. Rice and E. Teller—199
Electrostatic influence of substituents on the dissociation constants of organic acids. I and II, J. G. Kirkwood and F. H. Westheimer—437(L)
On transport phenomena in the cage model of liquids, R. Simha—857(L)
Vapor pressures of ortho- and parahydrogen and ortho- and paradeuterium, K. Cohen and H. C. Urey—1068(L)
Vibration spectra and molecular structure. VII. Further infra-red studies on the vapors of some carboxylic acids, R. C. Herman and R. Hofstadter—630(L)

Explosion (see **Ignition**)

Fluorescence

Of carbonyl compounds in the gas phase, M. S. Matheson and J. W. Zabor—536
Of diacetyl, H. Q. Fuller, L. W. Phillips and G. M. Almy—973(L)
Of glyoxal vapor, H. W. Thompson—855(L)
And photochemical kinetics of polyatomic molecules in the gas phase, W. A. Noyes, Jr. and F. C. Henriques, Jr.—767(S)

Heat Capacity (see **Thermodynamic Properties**)

Hydrogen Bonds

In liquids, W. Gordy—93
Spectroscopic evidence for aniline and some substituted phenols, W. Gordy—167
Spectroscopic evidence with chloroform and bromoform in donor solvents, W. Gordy—163

Ignition

Of ethylazide in the presence of diethyl ether, O. K. Rice and H. C. Campbell—700(S)
Experimental evidence for incomplete rotational excitation in diatomic gases at ordinary temperatures and pressures, B. Lewis and G. von Elbe—197
Explosion limits of the hydrogen-oxygen mixture, O. Oldenberg and H. S. Sommers, Jr.—279(L)
Of gases, ellipsoid sources, H. G. Landau—112

Infra-Red Spectra (see **Absorption Spectra**)

Intensities of Electronic Transitions in Molecular Spectra

Of benzene, R. S. Mulliken—353
Charge transfer spectra, R. S. Mulliken—20
Of conjugated polyenes and carotenoids, R. S. Mulliken—364

Intensities of Electronic Transitions in Molecular Spectra (continued)
Of cyclic dienes and hyperconjugation, R. S. Mulliken—339
Introduction, R. S. Mulliken—14
Molecules with double bonds, R. S. Mulliken—121
Of odd-numbered conjugated polyene chain molecules and organic dyes (with notes on optical anisotropy and Raman intensities), R. S. Mulliken—570
Refractivities, R. S. Mulliken—356

Ionization
Differential method applied to the surface ionization of sodium halides on tungsten, A. A. Johnson and T. E. Phipps—1039
Electrostatic effects on ionization constants, E. C. Baughan—951

Isotopes
Concentration of C^{13} by chemical exchange, I. Roberts, H. G. Thode and H. C. Urey—137(L)
Concentration of N^{15}, H. G. Thode and H. C. Urey—34
Exchange reactions of nitrogen isotopes on iron and tungsten surfaces, G. G. Joris and H. S. Taylor—893
Raman spectra of deuterium substituted guanidine and urea, J. W. Otvos and J. T. Edsall—632(L)
Rate constants in H_2O-D_2O mixtures, F. Brescia—310
Separation by thermal diffusion, A. Bramley and A. K. Brewer—553(L); L. J. Gillespie—438(L); C. G. Maier—854(L); Construction and operation of apparatus, T. I. Taylor and G. Glockler—851; Effect of baffles, A. K. Brewer and A. Bramley—972(L); Simple theory of, L. J. Gillespie—530
Vapor pressures and exchange of isotope compounds, H. C. Urey, A. Mills, I. Roberts, H. G. Thode and J. R. Huffman—138(L)

Kinetics of Reactions
Absolute values of the velocity constants in the formation of semiquinone, G. Kornfeld—274
Cadmium photosensitized reactions of ethane, E. W. R. Steacie and R. Potvin—782(S)
Chemical activation by gaseous ionization, S. C. Lind—790(S)
Corrections to paper "The role of free radicals in elementary organic reactions," F. O. Rice and E. Teller—199
Effect of temperature on the predissociation of photo-activated acetaldehyde molecules, G. K. Rollefson and D. C. Grahame—775(S)
Experimental basis for the theory of quasi-unimolecular reactions, R. N. Pease—749(S)
Explosion of ethyl azide in the presence of diethyl ether, O. K. Rice and H. C. Campbell—700(S)
Fluorescence and photochemical kinetics of polyatomic molecules in the gas phase, W. A. Noyes, Jr. and F. C. Henriques, Jr.—767(S)
On intramolecular diffusion quantum-theory, and the calculation of unimolecular velocity-constants, J. A. Christiansen—653(S)
Isotope exchange reactions of nitrogen isotopes on iron and tungsten surfaces, G. G. Joris and H. S. Taylor—893
Isotope exchange reactions in D_2O-H_2O mixtures, F. Brescia—310
On the kinetics of complex reactions, N. Semenoff—683(S)
Kinetics of the oxidation of hydrogen sensitized by nitrogen dioxide, R. H. Crist and J. E. Wertz—719(S)
Kinetics of phase change. I, M. Avrami—1103
Kinetics of the vapor phase reactions of cyclopropane with iodine, R. A. Ogg, Jr. and W. J. Priest—736(S)
Mechanisms of complex reactions and the association of H and O_2, G. von Elbe and B. Lewis—710(S)
Mechanism of some chain reactions, F. O. Rice and K. F. Herzfeld—671(S)
Mechanism of orientation in *i*-butyl and *i*-amyl bromide glasses, W. O. Baker and C. P. Smyth—574
Nature of the critical complex and the effect of changing medium on the rate of reaction, G. Scatchard—657(S)
Photolysis of aldehydes and ketones in the presence of iodine vapor, E. Gorin—256
Polymerization of gaseous butadiene, G. B. Kistiakowsky and W. W. Ransom—725(S)
On the quantum efficiency of photosynthesis, F. F. Rieke—238
Some quantum-mechanical considerations in the theory of reactions involving an activation energy, J. O. Hirschfelder and E. Wigner—616
Radicals
Erratum: "The role of freed radicals in elementary organic reactions," F. O. Rice and E. Teller—199
O—H radicals as determined by their absorption spectrum, O. Oldenberg and F. F. Rieke—485
Reactions between methyl radicals, H. A. Taylor and M. Burton—675(S)
Reactions of methyl radicals with deuterium, ethane, neopentane, butane and isobutane, J. O. Smith, Jr. and H. S. Taylor—390
Rate of evaporation of barium oxide, J. P. Blewett, H. A. Liebhafsky and E. F. Hennelly—478
On the rate of ionization in aqueous solution of the carbon-hydrogen bond in aliphatic compounds, K. F. Bonhoeffer, K. H. Geib and O. Reitz—664(S)
Reactions involving hydrogen and the hydrocarbons, E. Gorin, W. Kauzmann, J. Walter and H. Eyring—633(S)
Remarks on the calculation of bond strengths, M. Burton—1072
Some remarks on the theory of reaction rates, E. P. Wigner—646(S)
Significance of activation entropy in catalytic mechanisms, A. E. Stearn, H. P. Johnston and C. R. Clark—970
Solution of an equation occurring in the theory of consecutive reactions, A. L. Selikowitz—278(L)
Sulfur bands and an attempt to obtain HS bands, G. Glockler and W. Horwitz—857(L)
Thermal aging and abnormal physical properties of fresh silver bromide, I. M. Kolthoff and A. S. O'Brien—401
Thermal chlorination of chloroform, H. A. Taylor and W. E. Hanson—418

Thermal Decomposition
Of acetaldehyde: chain length and chain-ending processes, M. Burton, H. A. Taylor and T. W. Davis—1080
Of azomethane, H. A. Taylor and F. P. Jahn—470
Of azomethane in presence of nitric oxide, F. P. Jahn and H. A. Taylor—474
Of diacetyl, F. O. Rice and W. D. Walters—1015
Of ethyl bromide and the collision theory of first-order reactions, F. Daniels and P. L. Veltman—756(S)
Interpretation of the mechanism of a thermal decomposition from photochemical evidence, H. A. Taylor and M. Burton—414
Of methylene diacetate, ethylidene diacetate and paracetaldehyde at low pressures, J. R. Dacey and C. C. Coffin—315

Liquids
Corresponding states for perfect liquids, K. S. Pitzer—583
Dielectric polarization of polar liquids, J. G. Kirkwood—911
Effect of temperature on the structure of mercury, R. N. Boyd and H. R. R. Wakeham—958
Further remarks on the solid-liquid equilibrium in argon, O. K. Rice—136(L)
Hindered molecular rotation and the dielectric behavior of condensed phases, A. H. White—58
Hydrogen bonds in, W. Gordy—93
Inhibition of crystallization of rubber by high pressure, R. B. Dow—201(L)
Intermolecular potential of mercury, J. H. Hildebrand, H. R. R. Wakeham and R. N. Boyd—1094
Melting as an order-disorder transition, G. H. Wannier—810
Molecular distribution of liquids, J. G. Kirkwood—919
Nature of the fusion process in argon, O. K. Rice—883
Optical surface thickness of pure water, J. W. McBain, R. C. Bacon and H. D. Bruce—818
Remarks on the hole theory of condensation, J. G. Kirkwood—908
Thermodynamics of crystals and melting, M. Born—591
On transport phenomena in the cage model of liquids, R. Simha—202(L); Erratum—857(L)
Structure and energy of vaporization, J. H. Hildebrand—1
Structure and entropy of vaporization, J. H. Hildebrand—233
Viscosity of chain-like molecular substances, F. Eirich and R. Simha—116
Viscosity of nonpolar liquids, S. Kyropoulos—52

Magnetic Properties
And Stark splitting for clusters of the form XY_6, J. H. Van Vleck—72
Of vanadium, titanium and chrome alum, J. H. Van Vleck—61

Mechanics
Anharmonicity of CH vibrations and product rule, O. Redlich—856(L)
Centrifugal distortion of axial molecules, Z. I. Slawsky and D. M. Dennison—509
On the ellipsoids of polarization of bonds and octets, S.-N. Wang—1012
Kinetic energy of polyatomic molecules, A. Sayvetz—383
Method of obtaining the expanded secular equation for the vibration frequencies of a molecule, E. B. Wilson, Jr.—1047
Skeletal modes of vibration of long chain molecules, J. G. Kirkwood—506

Mechanics, Quantum
Lengths of the links of unsaturated hydrocarbon molecules, C. A. Coulson—1069
Some quantum-mechanical considerations in the theory of reactions involving an activation energy, J. O. Hirschfelder and E. Wigner—616
Specific heat and double minimum problem of NH_3, R. F. Haupt and E. Teller—925

Mechanics, Statistical
Application of the theory of absolute reaction rates to overvoltage, H. Eyring, S. Glasstone and K. J. Laidler—1053
Of condensing systems. VI. The treatment of a system of constant energy, S. F. Streeter and J. E. Mayer—1025
Corresponding states for perfect liquids, K. S. Pitzer—583
Critical behavior of solid solutions in the order-disorder transformation, H. A. Bethe and J. G. Kirkwood—578
Dielectric polarization of polar liquids, J. G. Kirkwood—911
Dissociation treatment of condensing systems, W. Band—324; II.—927
Elementary theory of condensation, F. Cernuschi and H. Eyring—547
Erratum: On transport phenomena in the cage model of liquids, R. Simha—857(L)
General theory of heterophase fluctuations and pretransition phenomena, J. Frenkel—538
Grand partition functions and so-called "thermodynamic probability," E. A. Guggenheim—103
On the interaction of two colloidal particles, using the complete Debye-Hückel equation, S. Levine—831
Internal rotation in dimethyl acetylene, B. L. Crawford, Jr. and W. W. Rice—437(L)
On intramolecular diffusion quantum-theory, and the calculation of unimolecular velocity-constants, J. A. Christiansen—653(S)
Inversion of the partition function to determine the density of energy states, S. H. Bauer—1097
Melting as an order-disorder transition, G. H. Wannier—810
Molecular distribution liquids, J. G. Kirkwood—919
Nature of the fusion process in argon, O. K. Rice—883
On the nature of the liquid state, W. Band—1114(L)
Partition functions for partly classical systems, E. B. Wilson, Jr.—948
Probable length of hydrocarbon chains, L. Laskowski and R. E. Burk—465
Remarks on the hole theory of condensation, J. G. Kirkwood—908

Mechanics, Statistical (continued)
Some remarks on the theory of reaction rates, E. P. Wigner—646(S)
Rotational partition function of the water molecule, C. C. Stephenson and H. O. McMahon—614
Specific heat and double minimum problem of NH_3, R. F. Haupt and E. Teller—925
Symmetry number and thermodynamic functions for molecules having double minimum vibrations, K. S. Pitzer—251
Theory of condensation phenomena, J. Frenkel—200(L)
Thermodynamics of crystals and melting, M. Born—591
Thermodynamic properties of hydrogen fluoride and fluorine from spectroscopic data, G. M. Murphy and J. E. Vance—806

Molecular Spectra (see **Absorption Spectra, Fluorescence, and Intensities of Electronic Transitions**)

Molecular Structure and Constants (see also **Intensities of Electronic Transitions**)
Anharmonicity of CH vibrations and product rule, O. Redlich—856(L)
Antisymmetric molecular orbitals. II. Calculation of integrals, A. L. Sklar and R. H. Lyddane—374
Association in fatty acids, P. Koteswaram—88(L)
Centrifugal distortion of axial molecules, Z. I. Slawsky and D. M. Dennison—509
Coupling of vibrations with electronic levels in rare earth compounds, J. P. Howe and W. S. Herbert—277(L)
Erratum: The electrostatic influence of substituents on the dissociation constants of organic acids. I and II. J. G. Kirkwood and F. H. Westheimer—437(L)
Inertial effects in the skeletal vibrations of tetramethylmethane and tetramethylsilicon, S. Silver—1113(L)
Intermolecular potential of mercury, J. H. Hildebrand, H. R. R. Wakeham, and R. N. Boyd—1094
Internal rotation in dimethyl acetylene, B. L. Crawford, Jr. and W. W. Rice—437(L)
Internal rotation and dipole moment in succinonitrile, G. L. Lewis and C. P. Smyth—1085
Length of the links of unsaturated hydrocarbon molecules, C. A. Coulson—1069
Of light and heavy phenols and aniline, V. Williams, R. Hofstadter and R. C. Herman—802
Potential energy relationships in normal and excited acetaldehyde, T. W. Davis and M. Burton—1075
Potential function of the acetylene molecule. I, T.-Y. Wu and A. T. Kiang—178
Potential functions of the methyl halides, Z. I. Slawsky and D. M. Dennison—522
Probable length of hydrocarbon chains, L. Laskowski and R. E. Burk—465
Of pyrrole, L. R. Zumwalt and R. M. Badger—629
Raman spectrum and vibrational frequencies of methyl acetylene, B. L. Crawford, Jr.—140(L)
Remarks on the calculation of bond strengths, M. Burton—1072
Remarks on the calculation of bond strength in methane, H. A. Taylor and M. Burton—572
Skeletal modes of vibration of long chain molecules' J. G. Kirkwood—506
Spectroscopic determination of the carbon-chlorine distance in methyl chloride, G. B. B. M. Sutherland—1066(L)
Theory of optical activity, J. G. Kirkwood—139(L)
Vibrational spectra of 1,2 dihalogen ethanes and the question of internal rotation, T.-Y. Wu—965
Viscosity and molecular diameter of azomethane, H. Henkin and H. A. Taylor—829

Optical Activity
Ellipsoids of polarization of bonds and octets, S.-N. Wang—1012
Near infra-red absorption spectra of pentaerythritol and diketopiperazine obtained with plane polarized light, J. W. Ellis and J. Bath—862
Remarks on the theory of optical activity, J. G. Kirkwood—139(L)
Rotary dispersion and absorption spectra of carboxyl acids and hydrocarbons containing a methyl or cyclohexyl group, A. Rothen and P. A. Levene—975
Of the sugars, E. Gorin, W. Kauzmann and J. Walter—327

Phase Transitions
Changes of phase and transformations of higher order in monolayers, D. G. Dervichian—931; Erratum—1113(L)
Concerning the existence of a two-phase region in the ordering process, R. Hultgren—202(L)
Critical behavior of solid solutions in the order-disorder transformation, H. A. Bethe and J. G. Kirkwood—578
Detection of transitions in monolayers, W. D. Harkins and G. E. Boyd—203(L)
Elementary theory of condensation, F. Cernuschi and H. Eyring—547
General theory of heterophase fluctuations and pretransition phenomena, J. Frenkel—538
Heterophase fluctuations and pretransition phenomena, J. Brody—972(L)
Kinetics of phase change. I, M. Avrami—1103
In paramagnetic compounds, C. F. Squire—139(L)
Polymorphism of Cu_2S, and the relations between the solid phases in the system Cu_2S-CuS, N. W. Buerger—1067(L)
Remarks on the hole theory of condensation, J. G. Kirkwood—908
Theory of, J. E. Mayer and S. F. Streeter—1019

Phosphors
Blackening in zinc sulfide phosphors, N. T. Gordon, F. Seitz and F. Quinlan—4

Photochemistry
Of aldehydes and ketones in the presence of iodine vapor, E. Gorin—256
Blackening of zinc sulfide phosphors, N. T. Gordon, F. Seitz and F. Quinlan—4
Cadmium photosensitized reactions of ethane, E. W. R. Steacie and R. Potvin—782(S)

Chemical activation by gaseous ionization, S. C. Lind—790(S)
Effect of temperature on the predissociation of photo-activated acetaldehyde molecules, G. K. Rollefson and D. C. Grahame—775(S)
Fluorescence and photochemical kinetics of polyatomic molecules in the gas phase, W. A. Noyes, Jr. and F. C. Henriques, Jr.—767(S)
Interpretation of the mechanism of a thermal decomposition from photochemical evidence, H. A. Taylor and M. Burton—414
Kinetics of OH radicals as determined by their absorption spectra, O. Oldenberg and F. F. Rieke—485
Mechanism of optical sensitizing of silver halides and the quantum equivalent, S. E. Sheppard, R. H. Lambert and R. D. Walker—426
On the quantum efficiency of photosynthesis, F. F. Rieke—238
Reactions of methyl radicals with deuterium, ethane, neopentane, butane and isobutane, J. O. Smith, Jr. and H. S. Taylor—390
Sensitizing of silver halides by dyes. I. Adsorption of sensitizing dyes, S. E. Sheppard, R. H. Lambert and R. D. Walker—265

Quantum Mechanics (see **Mechanics, Quantum**)

Raman Effect
Of concentrated electrolytic solutions, A. da Silveira—380(L)
Depolarization measurements on Raman lines by an easy, accurate method, F. F. Cleveland and M. J. Murray—396
Intensities, R. S. Mulliken—570

Raman Spectra
Of antimony trimethyl, E. J. Rosenbaum and T. A. Ashford—554(L)
Of deuterium substituted guanidine and urea, J. W. Otvos and J. T. Edsall—632(L)
Of dibromo-difluoromethane and dibromo-chloromethane, G. Glockler and G. R. Leader—553(L)
Of difluoromethane, G. Glockler and G. R. Leader—382(L)
Of dihalogen ethanes, T.-Y. Wu—965
Of dimethyl acetylene, B. L. Crawford, Jr.—555
Of dimethyl ether, B. L. Crawford, Jr. and L. Joyce—307
Of ethane, C_2D_6, F. Stitt—297
Of fluorotrichloromethane, G. Glockler and G. R. Leader—278(L)
Of methyl acetylene, B. L. Crawford, Jr.—140(L)
Of methylamine, J. S. Kirby-Smith and L. G. Bonner—880
And molecular association in fatty acids, P. Koteswaram—88(L)
Of triborine triamine, $B_3N_3H_6$, B. L. Crawford, Jr. and J. T. Edsall—223
Vibrational assignments in ethane, E. F. Barker—277(L)

Solutions
Apparent molal ionic volumes in aqueous solutions of strong electrolytes, G. W. Stewart—381(L)
Ions of europium distributed between different configurations in homogeneous solutions, S. Freed, S. I. Weissman, F. E. Fortress and H. F. Jacobson—824
Raman effect of concentrated electrolytic solutions, A. da Silveira—380(L)
Of sodium in liquid ammonia, S. Freed and H. G. Thode—85
Variation in the structure of water in ionic solutions, G. W. Stewart—869

Sound
Ultrasonic velocities in and adiabatic compressibilities of mixtures of acetic acid and water, A. W. Smith and L. M. Ewing—632(L)

Statistical Mechanics (see **Mechanics, Statistical**)

Surface Phenomena
Activated adsorption of nitrogen on iron at 23° and 100°C and ammonia synthesis, O. Beeck and A. Wheeler—631(L)
Changes of phase and transformations of higher order in monolayers, D. G. Dervichian—931; Erratum—1113(L)
Differential method applied to the surface ionization of sodium halides on tungsten, A. A. Johnson and T. E. Phipps—1039
Electrical properties of multilayers, R. W. Goranson and W. A. Zisman—492
Exchange reactions of nitrogen isotopes on iron and tungsten surfaces, G. G. Joris and H. S. Taylor—893
Film potentials of stearate multilayers and other dielectrics on metal surfaces, W. D. Harkins and R. W. Mattoon—186
New method for the investigation of the electric properties of multilayers, G. Groetzinger and W. D. Harkins—204(L)
Optical surface thickness of pure water, J. W. McBain, R. C. Bacon and H. D. Bruce—818
Surface elasticity of egg albumin, J. B. Bateman and L. A. Chambers—244
Viscosity in films, W. D. Harkins and G. E. Boyd—203(L)

Thermodynamic Properties
Adiabatic compressibilities of mixtures of acetic acid and water, A. W. Smith and L. M. Ewing—632(L)
Of C_2H_6 and C_2D_6, G. B. Kistiakowsky, J. R. Lacher and F. Stitt—289
Of C_2H_6 and C_2D_6, G. B. Kistiakowsky and W. W. Rice—281
Concerning the existence of a two-phase region in the ordering process, R. Hultgren—202(L)
Critical behavior of solid solutions in the order-disorder transformation, H. A. Bethe and J. G. Kirkwood—578
Of cyanogen and the cyanogen halides, D. P. Stevenson—171
Equation of state of frozen neon, argon, krypton, and xenon, Brother G. Kane, F.S.C.—603

Thermodynamic Properties (continued)
Free energy of hydration of gaseous ions and absolute potential, W. M. Latimer, K. S. Pitzer and C. M. Slansky—108
General theory of heterophase fluctuations and pretransition phenomena, J. Frenkel—538
Heat capacity of cyanogen gas, E. J. Burcik and D. M. Yost—1114(L); F. Stitt—1115(L)
Heat of combustion of isopropanol, G. S. Parks and G. E. Moore—1066(L)
Internal rotation in dimethyl acetylene, B. L. Crawford, Jr. and W. W. Rice—437(L)
Of liquids, J. H. Hildebrand—1
Of nitrosyl chloride, C. M. Beeson and D. M. Yost—44
Solid-liquid transition of argon, O. K. Rice—136(L)
Specific heat and double minimum problem of NH_3, R. F. Haupt and E. Teller—925
Symmetry number and thermodynamic functions for molecules having double minimum vibrations, K. S. Pitzer—251
Thermodynamic properties of hydrogen fluoride and fluorine from spectroscopic data, G. M. Murphy and J. E. Vance—806
Thermodynamics of crystals and melting, M. Born—591
And transitions in paramagnetic compounds, C. F. Squire—139(L)
Vapor pressures of *o*- and *p*-H_2 and D_2, K. Cohen and H. C. Urey—438(L)

Thermodynamics
Grand partition functions and thermodynamic probability, E. A. Guggenheim—103

Transference Numbers
Of sodium acetate in aqueous solution, D. J. LeRoy and A. R. Gordon—314

Vapor Pressures
Of barium oxide, J. P. Blewett, H. A. Liebhafsky and E. F. Hennelly—478
Of isotopic compounds, H. C. Urey, A. Mills, I. Roberts, H. G. Thode and J. R. Huffman—138(L)
And liquid structure, J. H. Hildebrand—233
Of ortho- and parahydrogen and ortho- and paradeuterium, K. Cohen and H. C. Urey—157; Erratum —1068(L)
And structure of liquids, J. H. Hildebrand—1
Vapor pressures of *o*- and *p*-H_2 and D_2, K. Cohen and H. C. Urey—438(L)
Erratum: The vapor pressures of ortho- and parahydrogen and ortho- and paradeuterium, K. Cohen and H. C. Urey—1068(L)

Viscosity
For chain-like molecular substances, F. Eirich and R. Simha—116
And molecular diameter of azomethane, H. Henkin and H. A. Taylor—829
Of nonpolar liquids, S. Kyropoulos—52
On transport phenomena in the cage model of liquids, R. Simha—202(L)
In two-dimensional systems, W. D. Harkins and G. E. Boyd—203(L)

X-Ray Diffraction
Effect of temperature on the structure of mercury, R. N. Boyd and H. R. R. Wakeham—958
By gas molecules, $SiHCl_3$, M. H. Pirenne—144
Liquid ethyl alcohol, G. G. Harvey—878
Study of benzene-cyclohexane mixtures, G. E. Murray and B. E. Warren—141
Variation in the structure of water in ionic solutions, G. W. Stewart—869